

# CENTERLINE

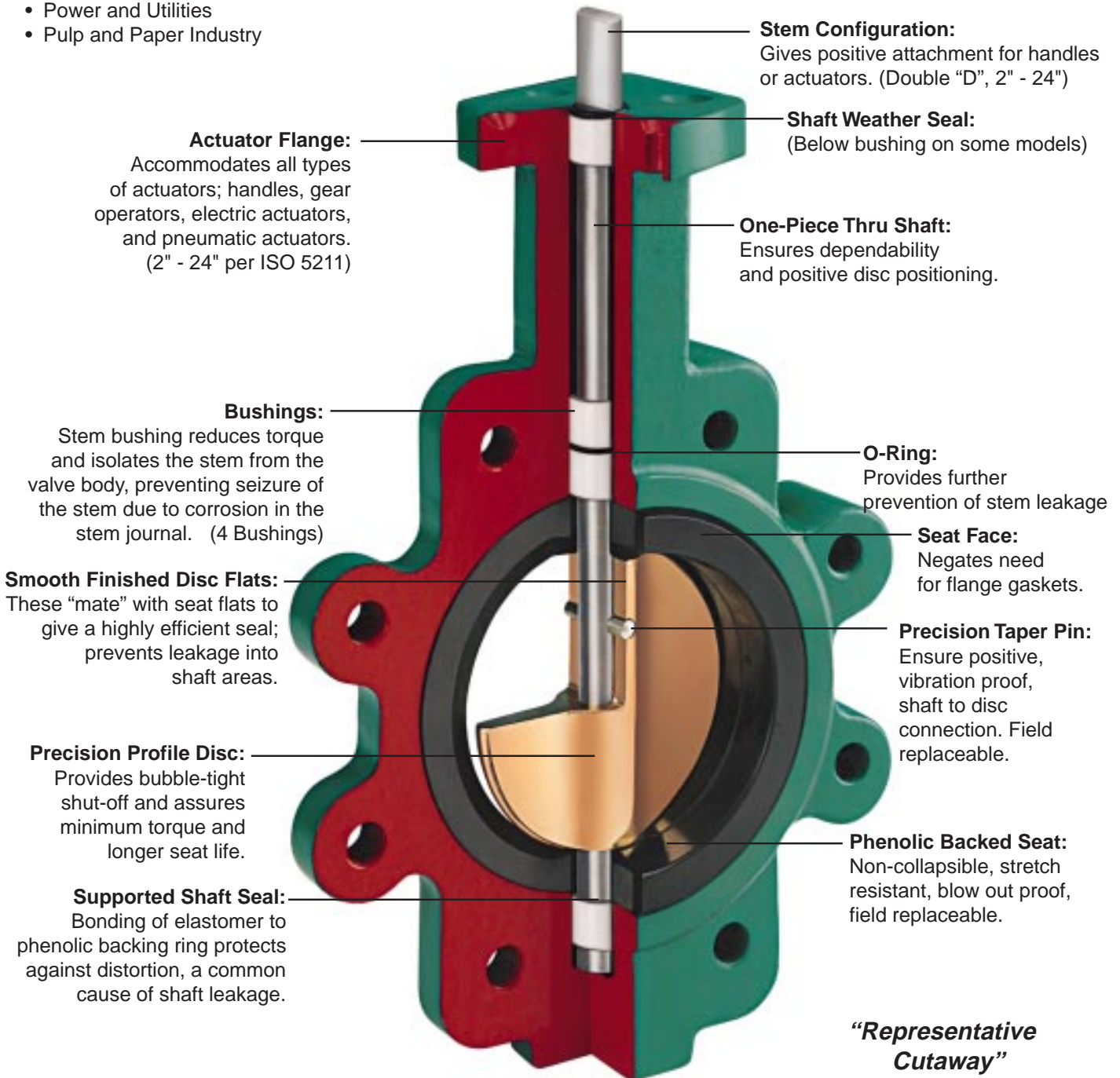
## Butterfly Valves Series 200



For over 40 years, Center Line has manufactured resilient seated butterfly valves. Today, Center Line continues to manufacture these butterfly valves as its primary product. Industries using Center Line resilient seat valve products include:

- HVAC
- Chemical/Petrochemical Processing
- Food and Beverage Industry
- Power and Utilities
- Pulp and Paper Industry

Quality is designed into the Series 200 butterfly valve, utilizing the phenolic-backed cartridge seat pioneered by Center Line. These valves feature precision-machined parts insuring years of dependable operation. With many body/trim combinations, there is a Series 200 valve to meet your application.



## \*Series 200 Butterfly Valves

- Available in sizes 2" to 48".
- Available in Wafer or Lug style body (2" to 30").
- Full flange style body for 36" to 48" valves.
- Wafer body features four alignment holes.
- Pressure ratings for tight shut-off at temperatures up to the maximum limit of the seat material:
  - 2" to 12" — 200 psi, 125 psi for PTFE seat.
  - 14" to 48" — 150 PSI.
- Ideal for on-off or throttling services.
- Available with handles (2" to 12"), manual gear operators (2" to 48"), and electric or pneumatic actuators (2" to 48").
- Refer to Crane actuator bulletins for details of pneumatic and electric actuators.
- Designed to comply with MSS SP-67.
- Compatible with ANSI 125/150 flanges.
- Valves 2" to 20" meet the intent and have passed the AWWA C-504-87 Section 5 proof of design tests.
- Type approval certification from ABS for marine applications (2" to 14").
- Bi-directional dead-end capability to 200 psi (2" to 12") and 150 psi (14" to 24") is available.
- Operators mounted perpendicular to pipe.

(\*Note: Series 200 formally known as "A" & "LT")

## Valve Seating Torques (In-Lbs.)

Valve Size	Standard Disc Differential Pressure								Undercut Diff. Press.	
	50 PSI ΔP Bushing		100 PSI ΔP Bushing		150 PSI ΔP Bushing		200 PSI ΔP Bushing		75 PSI ΔP Bushing	
	Bronze	PTFE	Bronze	PTFE	Bronze	PTFE	Bronze	PTFE	Bronze	PTFE
2"	106	100	117	106	129	111	140	117	-	-
2 1/2"	152	150	166	163	181	176	195	189	-	-
3"	213	207	230	220	248	232	265	244	-	-
4"	321	290	386	323	450	357	515	390	-	-
5"	481	423	598	481	715	540	832	598	-	-
6"	692	599	878	691	1,063	783	1,248	875	-	-
8"	1,326	1,060	1,716	1,183	2,106	1,307	2,496	1,430	1,124	819
10"	2,239	1,671	3,010	1,872	3,780	2,074	4,550	2,275	1,363	909
12"	3,959	2,568	4,953	2,795	5,948	3,023	6,942	3,250	2,457	1,445
14"	4,881	2,640	6,226	3,070	7,570	3,500	-	-	4,400	2,300
16"	7,020	4,260	8,580	4,880	10,140	5,500	-	-	5,900	3,600
18"	10,105	6,287	12,202	7,243	14,300	8,200	-	-	8,300	5,500
20"	13,923	8,360	16,582	9,180	19,240	10,000	-	-	11,100	6,700
24"	23,617	15,427	26,953	16,813	30,290	18,200	-	-	17,300	12,100
30"	39,721	27,313	43,391	29,407	47,060	31,500	-	-	27,300	21,100

All torques shown on the chart were derived from test data using water at 60°F. For torques using dry gases, multiply these numbers by 1.6. For torques involving other media, please consult the factory.

There is no safety factor included in the numbers shown on this chart. For actuator sizing, Center Line recommends that these values be multiplied by 1.2 for single valve applications, and 1.5 for 3-way ("tee") applications.

Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques. When designing valve systems, hydrodynamic torque must be considered to help insure correct selection for the application.

## Seat Temperature Ratings

Material	Temperature Ratings °F
Buna-N	+10 to 180
Abrasive Resistant Buna-N	+10 to 180
Neoprene	+20 to 200
EPDM (2" - 16")	-30 to 275
EPDM (18" & Above)	-30 to 225
EPDM, Food Grade (2" - 12")	-30 to 225
Hypalon	0 to 275
Viton®	+10 to 275
High Temp. Viton®*	+10 to 400
PTFE over Buna-N (125 psi, 2" - 12")	+40 to 250
PTFE over Buna-N (75 psi, 2" - 12")	+40 to 275

Although elastomers have an effective operating temperature range, when used in valves, these ranges may have to be modified. The temperature ranges shown in the table have been adjusted accordingly.

**For Low Temperature:** While the seat materials selected for use in Center Line butterfly valves are capable of withstanding lower temperatures without damage, the durometer of the elastomer is changed. This "hardening" of the seat may increase the operating torque beyond the structural limits of the stem and/or the disc to stem configuration.

**For High Temperature:** When using High Temperature Viton®, the operating pressure of the valve is reduced above 275°F.

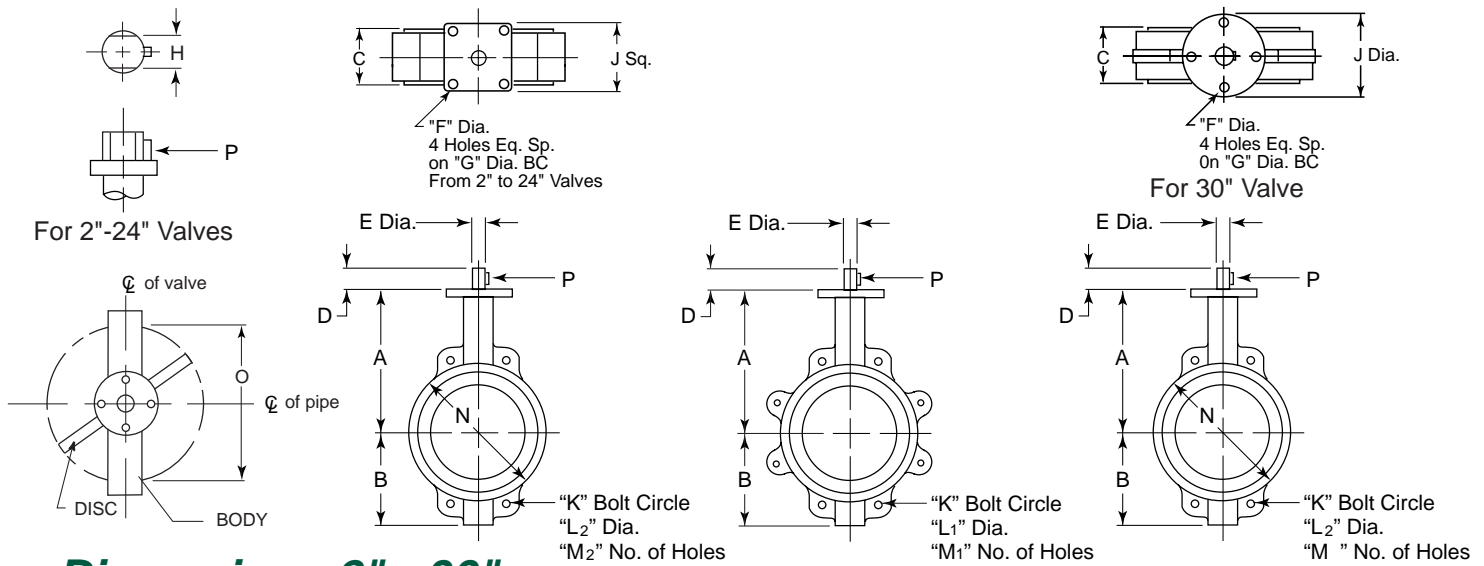
## C<sub>v</sub> Values – Valve Sizing Coefficients (US-GPM @ 1ΔP)

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	0.06	3	7	15	27	44	70	105	115
2 1/2"	0.10	6	12	25	45	75	119	178	196
3"	0.20	9	18	39	70	116	183	275	302
4"	0.30	17	36	78	139	230	364	546	600
5"	0.50	29	61	133	237	392	620	930	1022
6"	0.80	45	95	205	366	605	958	1437	1579
8"	2	89	188	408	727	1202	1903	2854	3136
10"	3	151	320	694	1237	2047	3240	4859	5340
12"	4	234	495	1072	1911	3162	5005	7507	8250
14"	6	338	715	1549	2761	4568	7230	10844	11917
16"	8	464	983	2130	3797	6282	9942	14913	16388
18"	11	615	1302	2822	5028	8320	13168	19752	21705
20"	14	791	1647	3628	6465	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116
30"	37	2080	4406	9546	17010	28147	44545	66818	73426



# Butterfly Valves

# Series 200



## Dimensions 2" - 30"

Inches / mm	A	B	C	D	E	F	G	H	J	K	L <sub>1</sub> *	L <sub>2</sub> *	M <sub>1</sub> *	M <sub>2</sub> *	N	O	P
2"	6 3/8	3 1/4	1 3/4	1 1/4	1/2	3/8	2.76	0.39	2 3/4	4 3/4	5/8-11	1 1/16	4	4	4.	1.26	No. 3
50	161.93	82.55	44.45	31.75	12.70	9.53	70	10	69.85	120.65					101.60	32.0	Wooduff #3
2 1/2"	6 7/8	3 3/4	1 7/8	1 1/4	1/2	3/8	2.76	0.39	2 3/4	5 1/2	5/8-11	1 1/16	4	4	4 3/4	1.83	No. 3
65	174.63	95.25	47.63	31.75	12.70	9.53	70	10	69.85	139.70	17.46				120.65	46.5	Wooduff #3
3"	7 1/8	4	1 7/8	1 1/4	1/2	3/8	2.76	0.39	2 3/4	6	5/8-11	1 1/16	4	4	5 1/8	2.54	No. 3
75	180.98	101.60	47.63	31.75	12.70	9.53	70	10	69.85	152.40	17.46				130.18	64.5	Wooduff #3
4"	7 1/8	4 1/8	2 1/8	1 1/4	5/8	3/8	2.76	0.47	2 3/4	7 1/2	5/8-11	1 1/16	8	4	6 3/4	3.54	No. 9
100	200.03	123.83	53.98	31.75	15.88	9.53	70	12	69.85	190.50	17.46				171.45	89.9	Wooduff #9
5"	8 3/8	5 3/8	2 1/4	1 3/8	3/4	3/8	2.76	0.55	2 3/4	8 1/2	3/4-10	1 3/16	8	4	7 3/4	4.36	No. 9
125	212.73	136.53	57.15	20.64	19.05	9.53	70	14	69.85	215.90	20.64				196.85	110.7	Wooduff #9
6"	8 7/8	5 7/8	2 1/4	1 1/4	3/4	3/8	2.76	0.55	2 3/4	9 1/2	3/4-10	1 3/16	8	4	8 3/8	5.72	No. 9
150	225.43	149.23	57.15	31.75	19.05	9.53	70	14	69.85	241.30	20.64				219.08	145.3	Wooduff #9
8"	10 1/4	7 1/8	2 1/2	1 3/4	7/8	7/16	4.02	0.67	3 3/4	11 3/4	3/4-10	1 3/16	8	4	10 1/16	7.6	No. 9
200	260.35	180.98	63.50	44.45	22.23	11.11	102	17	95.33	298.45	20.64				268.29	193.0	Wooduff #9
10"	11 1/2	8 3/4	2 3/4	1 3/4	1 1/8	7/16	4.02	0.87	3 3/4	14 1/4	7/8-9	1 5/16	12	4	13 1/16	9.5	No. 15
250	292.10	209.55	69.85	44.45	28.58	11.11	102	22	95.33	361.95	23.81				331.79	241.3	Wooduff #15
12"	13 1/4	9 3/4	3 1/8	1 3/4	1 1/4	7/16	4.02	0.95	3 3/4	17	7/8-9	1 5/16	12	4	16 5/8	11.45	No. 15
300	336.55	247.65	79.38	44.45	31.75	11.11	102	24	95.33	431.80	23.81				409.58	290.8	Wooduff #15
14"	14 1/2	11	3 3/8	1 3/4	1 1/4	7/16	4.02	0.95	3 3/4	18 3/4	1-8	1 1/16	12	4	17 1/8	12.78	No. 15
350	368.30	279.40	79.38	44.45	31.75	11.11	102	24	95.33	476.25	26.99				434.98	324.6	Wooduff #15
16"	15 3/4	12	3 1/2	2	1 5/16	7/8	6.50	1.06	6 1/2	21 1/4	1-8	1 1/16	16	4	20	14.97	5/16" Sq. x 1 1/4"
400	400.05	304.80	88.90	50.80	33.34	22.23	165	27	165.10	539.75	26.99				508.00	380.2	
18"	16 5/8	14 3/8	4 1/4	2	1 1/2	7/8	6.50	1.06	6 1/2	22 3/4	1 1/8 - 7	1 1/4	16	4	21 3/8	16.83	3/8" Sq. x 1 1/2"
450	422.28	365.13	107.95	50.80	38.10	22.23	165	27	165.10	577.85	31.75				542.93	427.5	
20"	18 1/8	14 5/8	5 1/4	2 1/2	1 5/8	7/8	6.50	1.26	6 1/2	25	1 1/8 - 7	1 1/4	20	4	23 3/16	18.67	3/8" Sq. x 1 3/4"
500	479.43	371.48	133.35	63.50	41.28	22.23	165	32	165.10	635.00	31.75				592.14	474.2	
24"	22 1/8	18	6 1/8	2 3/4	2	7/8	6.50	1.42	6 1/2	29 1/2	1 1/4 - 7	1 1/4	20	4	27 1/8	22.62	1/2" Sq. x 2 1/4"
600	561.98	457.20	155.58	69.85	50.80	22.23	165	36	165.10	749.30	34.93				708.03	574.5	
30"	25 1/2	24 1/4	6 3/4	3 1/4	2 1/2	7/8	8 1/2	N/A	11 1/4	36	1 1/4 - 7	1 1/4 - 7	28	4	34 3/8	28.6	5/8" Sq. x 2 5/8"
750	647.70	615.95	171.45	82.55	63.50	22.23	215.90		285.75	914.40					873.13	726.4	

\*L<sub>1</sub> and \*M<sub>1</sub> refer to Lug style valves, L<sub>2</sub> and M<sub>2</sub> refer to Wafer Style. "C" dimension is listed with elastomer in the relaxed condition. Approximately 1/8" total compression is required for proper sealing with pipe flanges. Valves are designed for installation between ANSI B16.1 Class 125 (Iron) and B16.5 Class 150 (Steel) flanges. Gaskets are not needed, and should not be used since the seat face seals against the mating flange. If the valve is to be installed in plastic or fiberglass flanges, flange rings, or Van Stone style flanges, consult your Center Line agent or the factory for additional information. Center Line recommends that a blind flange be used on end of line applications.

<sup>1</sup> Consult factory for dimension to 2 1/2" and 5" PTFE seated valves. "O" dimension is the valve clearance dimension.